

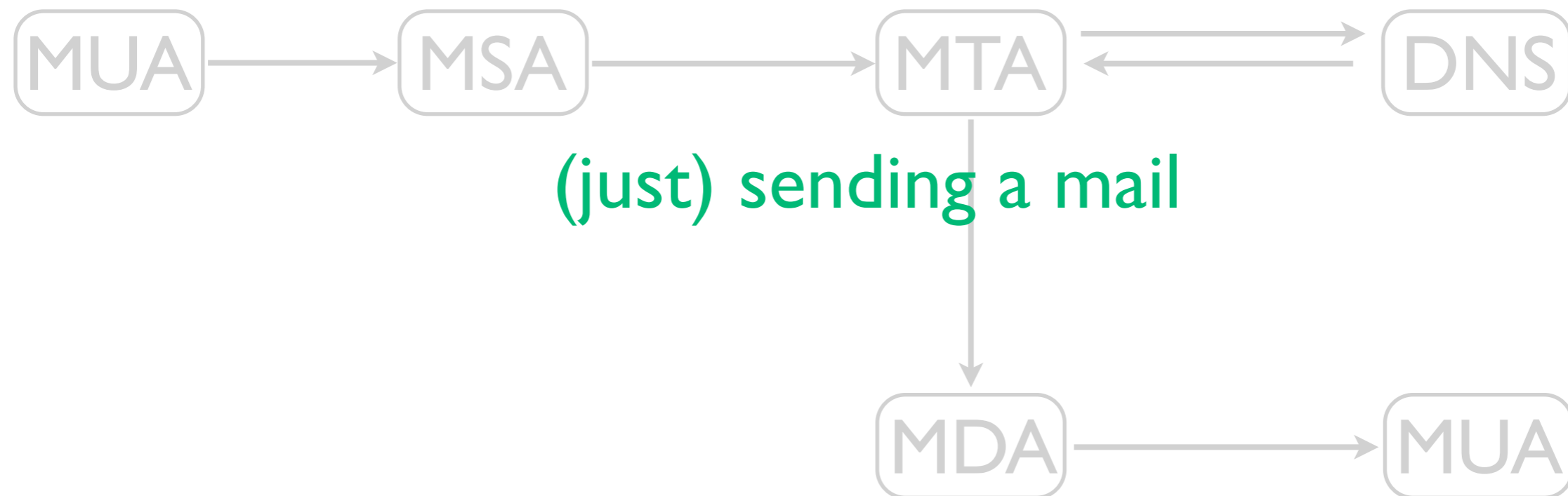
Mail, DNS

the bioinformatics lab

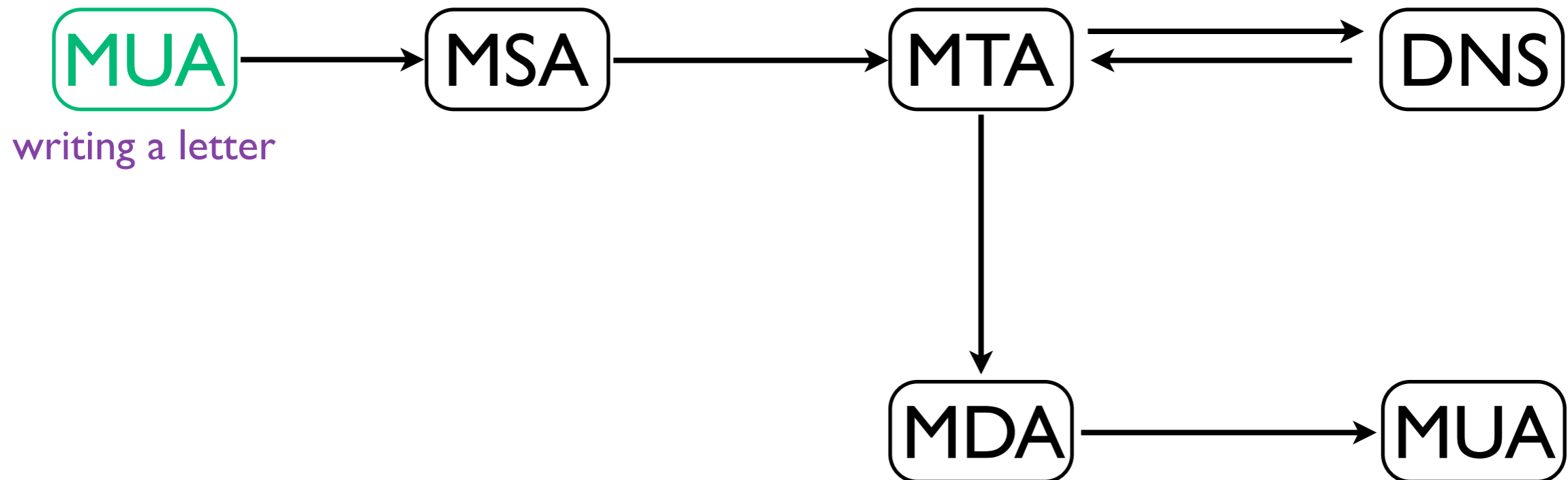
Ariane C. Boehm

22.05.2012

Overview



Overview



MUA

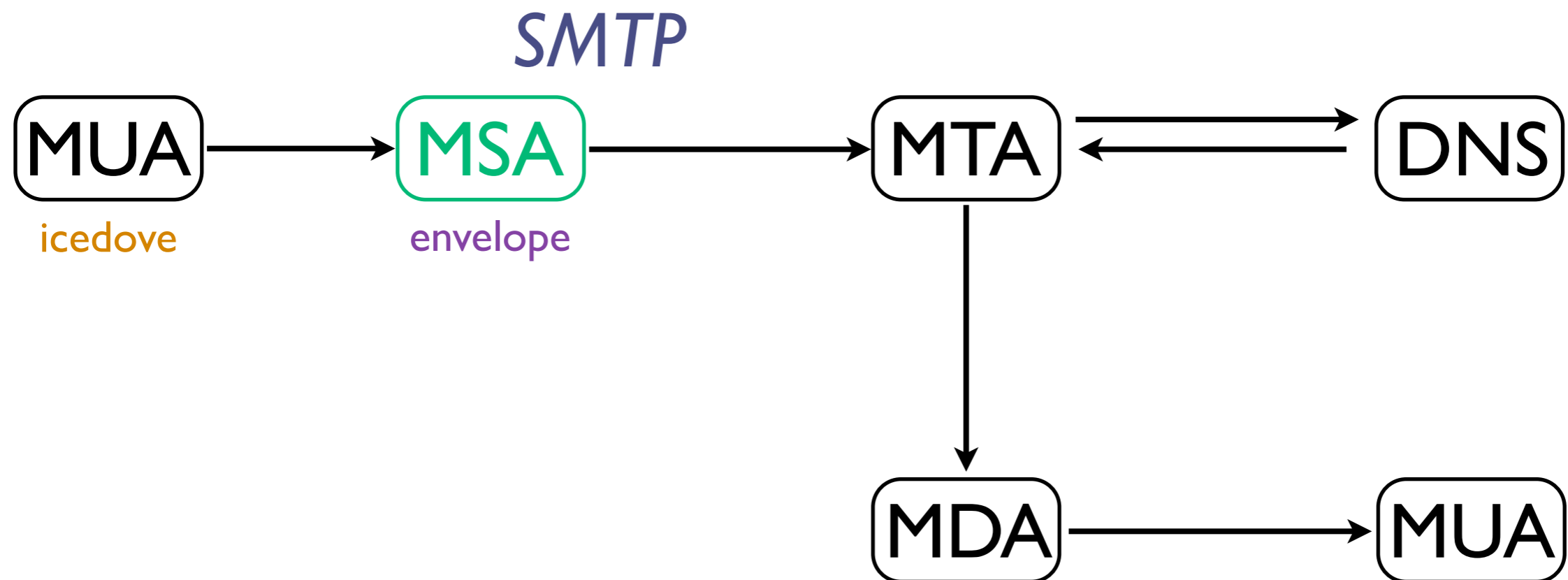
“Mail User Agent”

- mail client
 - Microsoft Office Outlook
 - Apple Inc. Mail
 - Mozilla Thunderbird

➡ userfriendly interface

icedove

Overview



MSA

“Mail Submission Agent”

- receive message from MUA
- works with MTA
 - sometimes connected with MTA
 - else: errors may be solved
- uses SMTP

SMTP

“Simple Message Transfer Protocol”

>>hello server

ready, talk<<

>>it's me

ok<<

>>my user xy has a mail for you

ok<<

>>it's for your user pq

ok<<

>>here comes the data

start input<<

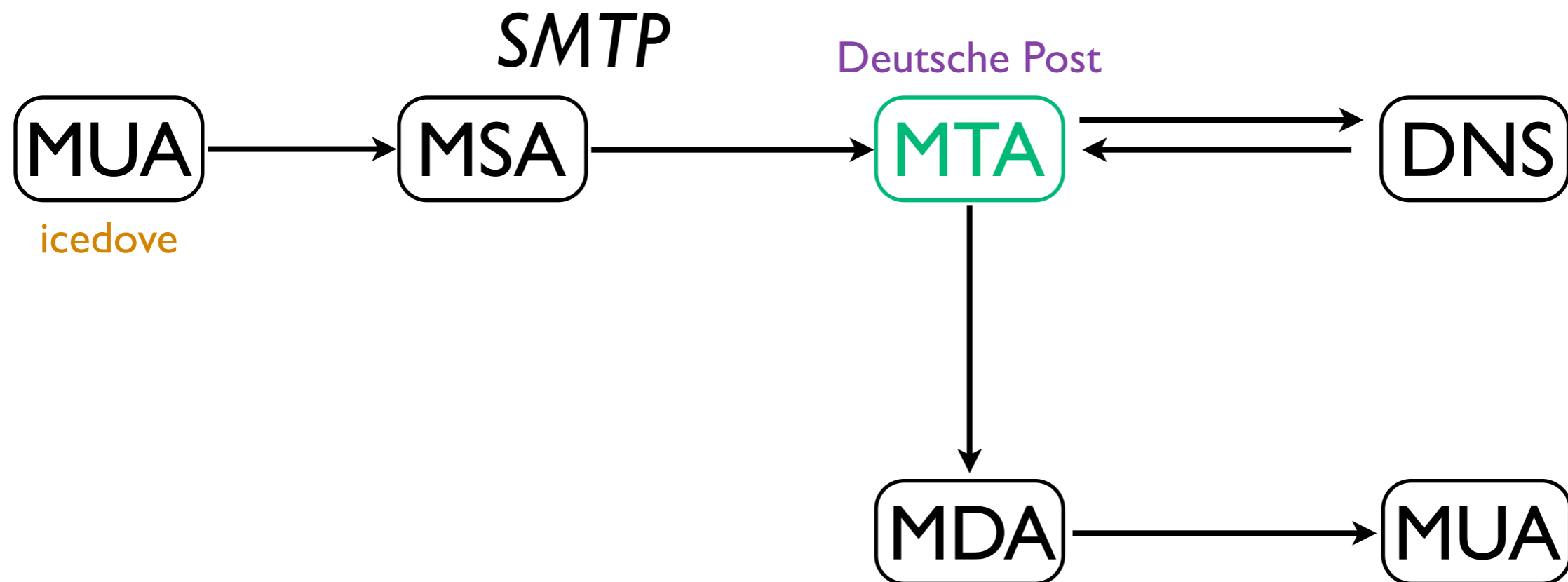
>>DATA

ok<<

>>ok, bye

close connection<<

Overview



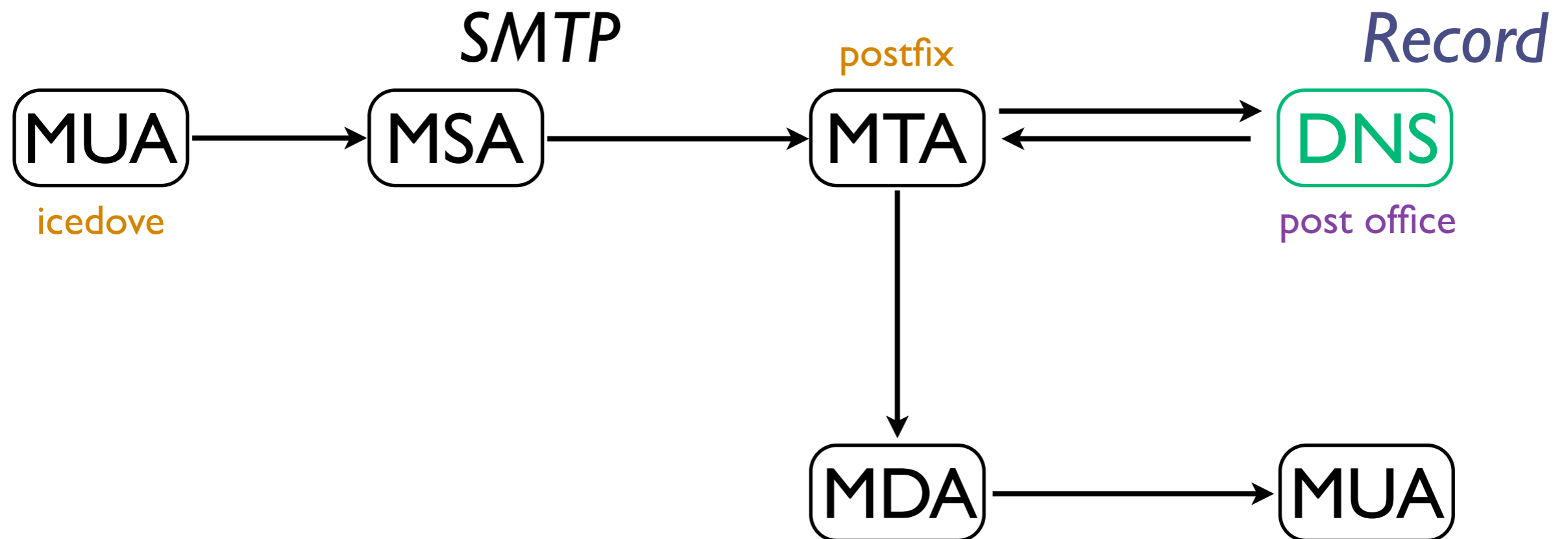
MTA

“Mail Transfer Agent”

- outgoing mail server / SMTP server
- “talk” to other MTAs via SMTP
 - transfers from server to server
- also called “Message Handling Service”
- uses DNS

postfix

Overview



DNS

“Domain Name System”

- translates human-friendly hostnames into computer-friendly IP-addresses
- using different (Resource) Records
 - also called RR

Records

- A-Record Type:

Name → IP

- PTR-Record Type:

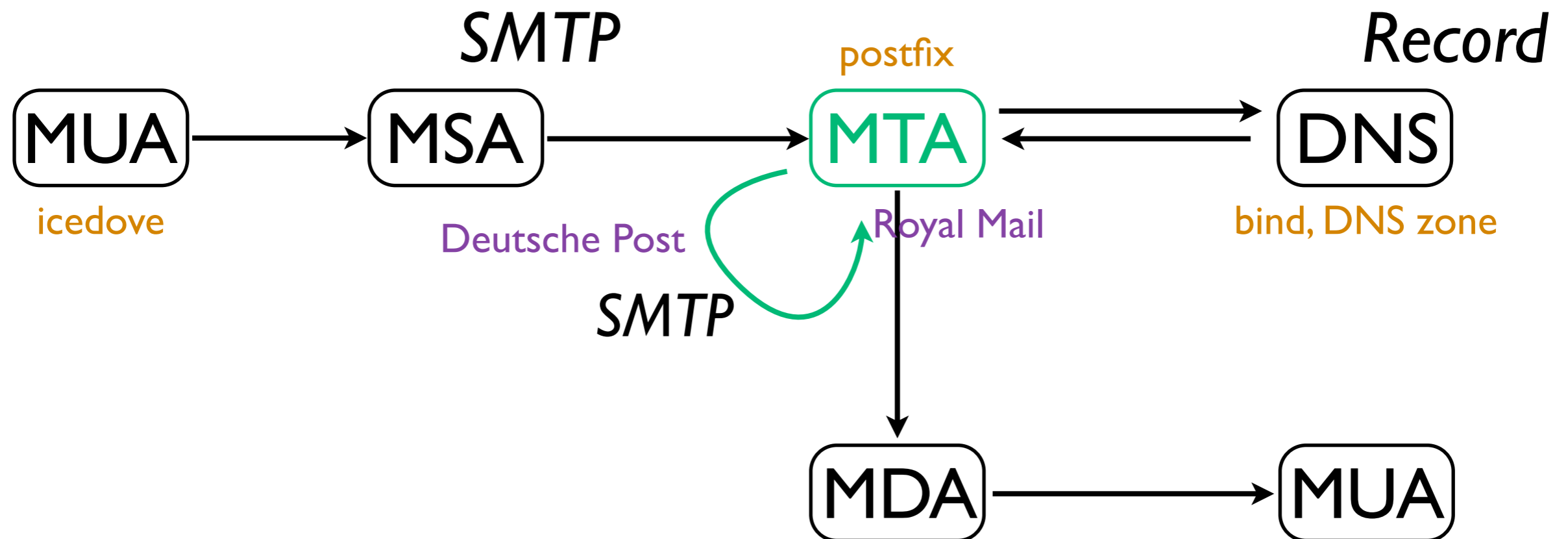
IP → Name

- MX-Record

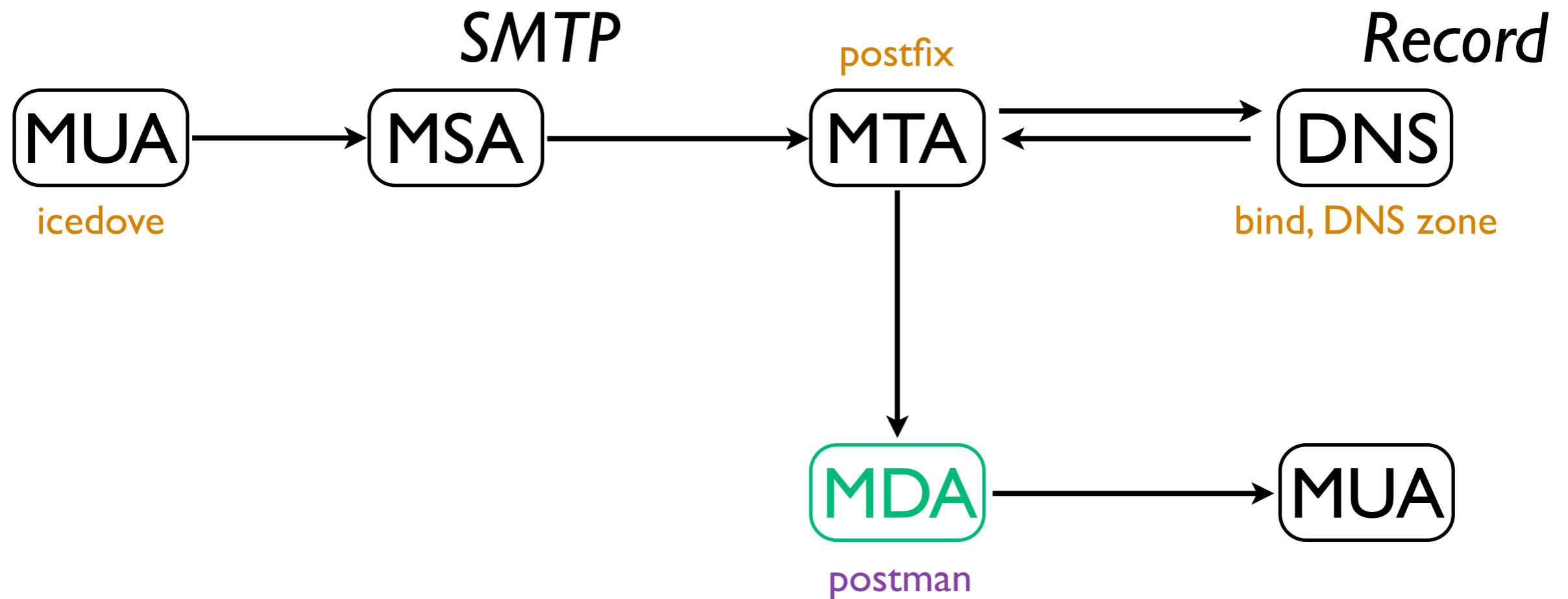
domain name → MTA agents

DNS zone

Overview



Overview



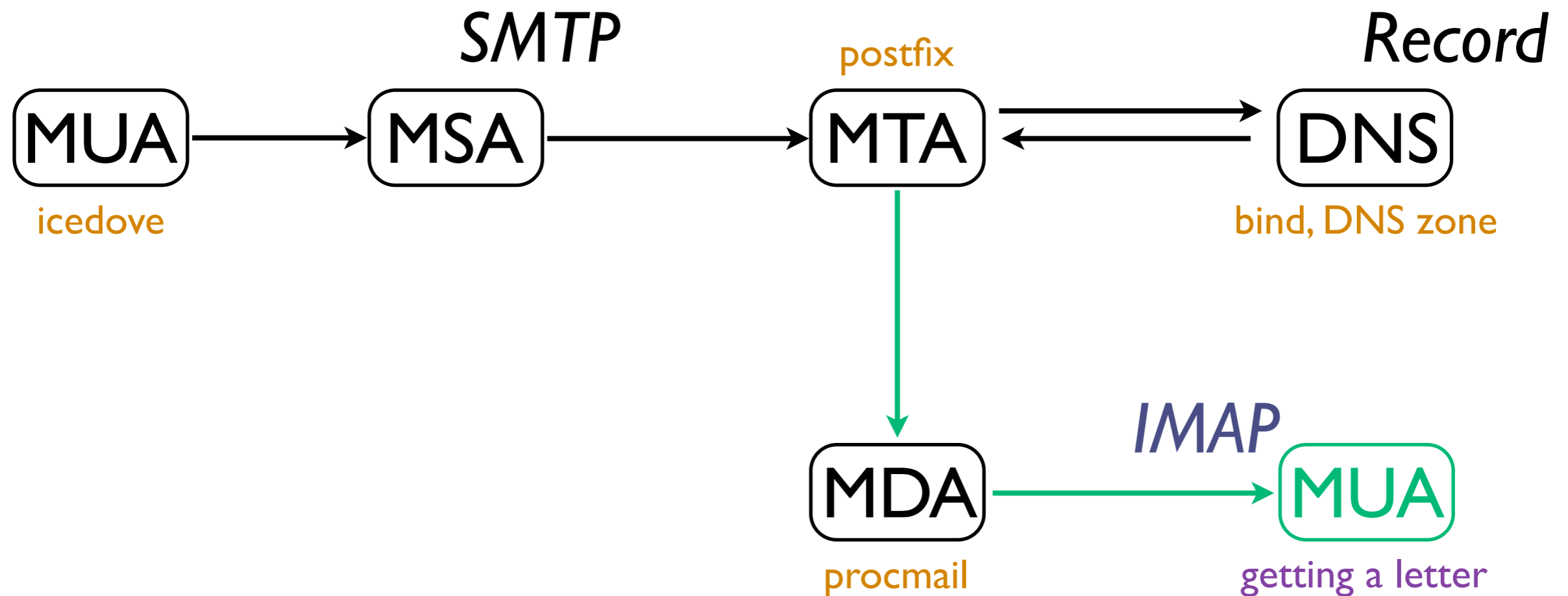
MDA

“Mail Delivery Agent”

- responsible for the delivery of messages
- some have capability of sorting / filtering

procmail

Overview



IMAP

“Interet Message Access Protocol”

>>login

login complete<<

>>select inbox

18 messages<<

2 unread<<

1 important<<

I allow you to read and write<<

>>fetch info of mail 3

MAIL 3<<

>>flag: deleted

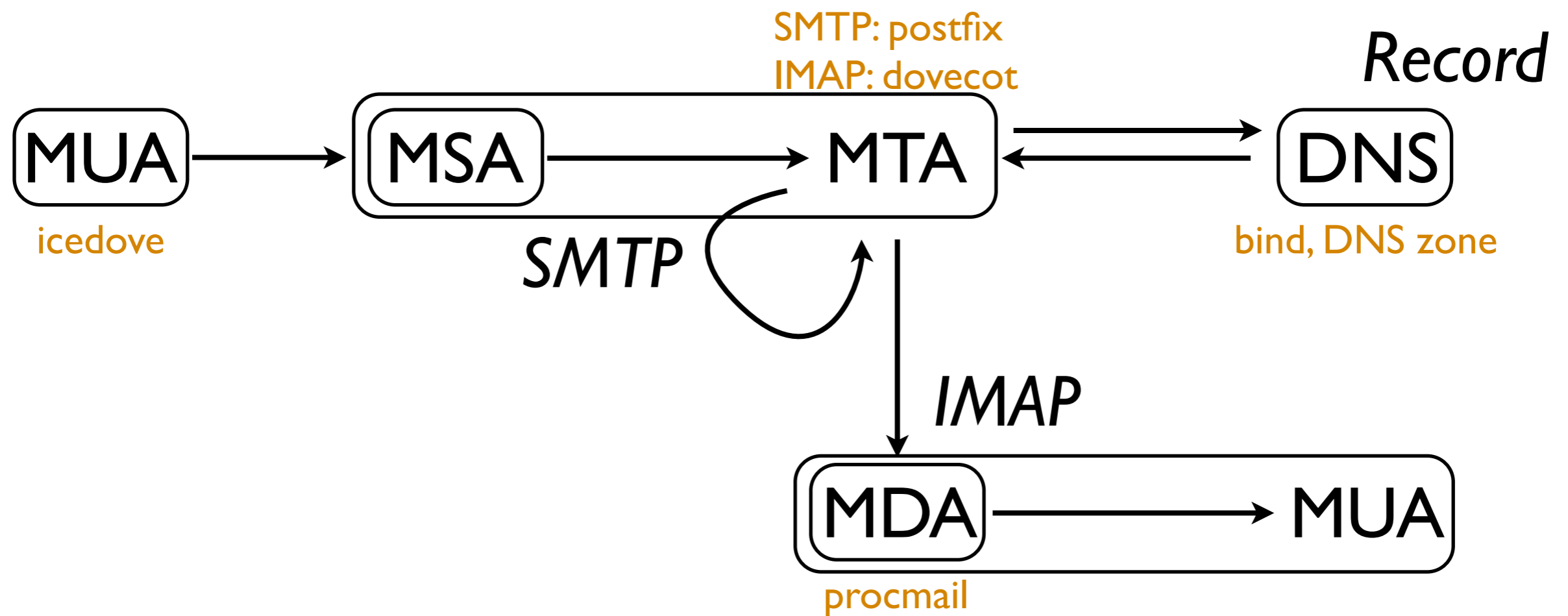
Mail 3 flaged :deleted<<

>>logout

close connection<<

dovecot

Overview



Details and Usage

(MTA, DNS zone, procmail)

MTAs

Mail server	Server OS support			Features											Storage			License
	Linux/Unix	Windows	Mac OS	SMTP	POP3	IMAP	IMAP IDLE	SMTP over TLS	POP over TLS	IPv6	NNTP	SSL	Webmail	ActiveSync	Database	Filesystem	Other	
agorum core	Yes	Yes	No	Yes	No	Yes	?	No	No	?	No	Yes	Yes	No	Yes	No	No	Open Source/GPLv2
Apache James	Yes	Yes	Yes	Yes	Yes	Yes	?	Yes	Yes	?	Yes	Yes	No	No	Yes	Yes	No	Open Source/ASLv2
Atmail	Yes	No	Yes	Yes	Yes	Yes	Yes	?	Yes	?	No	Yes	Yes	Yes	Yes	Yes	No	Proprietary (Free 5 user)
Axigen	Yes	Yes	No	Yes	Yes	Yes	?	Yes	Yes	No	No	Yes	Ajax & Basic	Yes	No	No	Yes	Proprietary (free version: email 100 users / calendar 5 users)
Citadel	Yes	No	Yes	Yes	Yes	Yes	?	Yes	Yes	?	?	Yes	Yes	No	Yes	No	No	Open Source/GPLv3
CommuniGate Pro	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Proprietary
Courier Mail Server	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	?	Yes	Yes	No	No	maildir	No	Open Source
Cyrus IMAP	Yes	No	Yes	No	Yes	Yes	?	No	Yes	Yes	Yes	Yes	No	No	Yes (indexes)	Yes	Yes	Open Source/BSD
DBMail	Yes	via Cygwin	Yes	Postfix, Exim, Sendmail, qmail	Yes	Yes	Yes	Postfix, Exim, Sendmail, qmail	Yes	Yes	?	Yes	No	No	PostgreSQL, MySQL, SQLite	No	No	GPL
Digital Integration iMail5	Yes	Yes	No	Yes	Yes	Yes	?	Yes	Yes	?	No	Yes	Yes	No	Yes	Yes	Yes	Proprietary
Dovecot	Yes ^[1]	No ^[1]	Yes ^[1]	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	No	No	Yes	maildir, mbox, dbox	No	Open Source/Mixed: MIT and LGPL 2.1 ^[2]
Eudora Internet Mail Server	No	No	Yes	Yes	Yes	Yes	?	No	No	?	No	No	No	No	No	No	Yes	Proprietary
Exim	Yes	via Cygwin	Yes	Yes	No	No	No	Yes	No	Yes	No	Yes	No	No	Yes	Yes	No	Open Source/GPL
FirstClass	Yes	Yes	Yes	Yes	Yes	Yes	?	Yes	Yes	?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Proprietary
Gordano Messaging Suite	Yes	Yes	No	Yes	Yes	Yes	?	Yes	Yes	?	No	Yes	Yes	No	Yes	Yes	Yes	Proprietary
GroupWise	Yes	Yes	No	Yes	Yes	Yes	?	Yes	Yes	?	?	Yes	Yes	Yes	Yes	No	No	Proprietary
Hexamail Server	Yes	Yes	No	Yes	Yes	Yes	?	Yes	Yes	?	No	Yes	Yes	No	No	Yes	No	Proprietary
hMailServer	No	Yes	No	Yes	Yes	Yes	Yes	V 5.0	V 5.0	Yes	No	V 5.0	Yes	No	Yes	No	No	GNU GPL (V5.0 Proprietary)
IBM Lotus Domino	Yes	Yes	No	Yes	Yes	Yes	?	Yes	Yes	?	Yes	Yes	Yes	Yes	Yes	No	No	Proprietary
IndiMail	Yes	No	Yes	Yes	Yes	Yes	?	Yes	Yes	Yes	No	Yes	No	No	Yes	Yes	No	Open Source/GPLv3
Ipswitch iMail Server	No	Yes	No	Yes	Yes	Yes	?	Yes	Yes	?	No	Yes	Yes	Yes	No	Yes	No	Proprietary
JMail	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Proprietary
Kerio Connect	Yes	Yes	Yes	Yes	Yes	Yes	?	Yes	Yes	?	Yes	Yes	Yes	Yes	Yes	Yes	No	Proprietary
MagicMail	Yes	No	No	Yes	Yes	Yes	?	Yes	Yes	?	No	Yes	Yes	No	Yes	Yes	Yes	Proprietary
MailSite Fusion	No	Yes	No	Yes	Yes	Yes	?	Yes	Yes	?	No	Yes	Yes	Yes	Yes	Yes	Yes	Proprietary
Mailtraq	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	?	Yes	Yes	Yes	No	Yes	Yes	Yes	Proprietary
MDaemon Mail Server	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	?	No	Yes	Yes	No	Yes [Requires one time	Yes	No	Proprietary

MTAs

MTA	server support	licence	features	storage
exim	all	open source	SMTP no IMAP, POP3	db, filesystem
postfix	no Windows	open source (IBM)	SMTP no IMAP, POP3	db, filesystem
sendmail	no Windows	open source	SMTP no IMAP, POP3	filesystem
dovecot	no Windows	open source	IMAP, POP3 no SMTP	db, filesystem (maildir, mbox)
Microsoft Exchange Server	just Windows	EULA	all	db, filesystem

DNS zone

```
root@ariane:/etc/bind# ls
bind.keys  db.empty  named.conf.default-zones  zones.rfc1918
db.0       db.local  named.conf.local
db.127     db.root   named.conf.options
db.255     named.conf  rndc.key
```



```
zone "localhost" {
    type master;
    file "/etc/bind/db.local";
};
```



DNS zone

```
zone "localhost" {  
    type master;  
    file "/etc/bind/db.local";  
};
```



```
; BIND data file for local loopback interface  
;  
$TTL      604800  
@         IN      SOA      localhost. root.localhost. (  
                                2           ; Serial  
                                604800      ; Refresh  
                                86400       ; Retry  
                                2419200     ; Expire  
                                604800 )    ; Negative Cache TTL  
;  
@         IN      NS       localhost.  
@         IN      A        127.0.0.1  
@         IN      AAAA     ::1  
~
```

DNS zone

origin “@”

comments behind “;”

```
; BIND data file for local loopback interface
;
$TTL      604800
@         IN      SOA     localhost. root.localhost. (
                                2           ; Serial
                                604800      ; Refresh
                                86400       ; Retry
                                2419200     ; Expire
                                604800 )    ; Negative Cache TTL
;
@         IN      NS      localhost.
@         IN      A       127.0.0.1
@         IN      AAAA    ::1
```

zone class
IN - internet

record

DNS zone

how long can
Resource
Record be
cached (default)

start of authority -
all important informations

```
; BIND data file for local loopback interface
;
$TTL      604800
@         IN      SOA     localhost. root.localhost. (
                                2           ; Serial
                                604800      ; Refresh
                                86400       ; Retry
                                2419200     ; Expire
                                604800 )    ; Negative Cache TTL
;
@         IN      NS      localhost.
@         IN      A       127.0.0.1
@         IN      AAAA    ::1
```

authorative name server

IPv6 address

DNS zone

MNAME	The <domain-name> of the name server that was the original or primary source of data for this zone.
RNAME	A <domain-name> which specifies the mailbox of the person responsible for this zone.
SERIAL	The unsigned 32 bit version number of the original copy of the zone. Zone transfers preserve this value. This value wraps and should be compared using sequence space arithmetic.
REFRESH	A 32 bit time interval before the zone should be refreshed.
RETRY	A 32 bit time interval that should elapse before a failed refresh should be retried.
EXPIRE	A 32 bit time value that specifies the upper limit on the time interval that can elapse before the zone is no longer authoritative.
MINIMUM = Negative Caching TTL	The unsigned 32 bit minimum TTL field that should be exported with any RR from this zone.

DNS zone

```
; BIND data file for local loopback interface
;
$TTL      604800
@         IN      SOA     localhost. root.localhost. (
                                2             ; Serial
                                604800        ; Refresh
                                86400         ; Retry
                                2419200       ; Expire
                                604800 )      ; Negative Cache TTL
;
@         IN      NS      localhost.
@         IN      A       127.0.0.1
~         IN      A       127.0.0.2
```

in tbl:	ariane	A	192.168.16.3
in 192.186.16:	3	PTR	ariane.tbl.

procmail recipe

- 3 main components
 - flag
 - condition
 - action

procmail recipe

:0	here comes a new filter
:0 H	flag: look at header
:0 B	flag: look at body
:0 :	flag: lock file
* x	condition: look for x
! pq	action: send forward to pq
/foo/bar	action: save mail to bar Folder

regular expressions will work!

procmail recipe

look at the body, if it contains “Ariane” - its spam

```
:0 B
```

```
* Ariane
```

```
/dev/null (deletes it forever)
```

look at header and lock the file, if it's from
xyz@gmx.de - filter it to my home mail folder

```
:0 H:
```

```
* ^From: xyz@gmx.de
```

```
$HOME/Mail/myFolder
```

procmail recipe

look at header and body and lock the file, if it's from xyz@gmx.de and contains "tbl" - filter it to Lazlos mail folder

```
:0 HB:
```

```
* ^From: xyz@gmx.de
```

```
* tbl
```

```
$USERS/laszlo/Mail/LaszlosMail
```

thank you.